the diameter exceeding a third of the head's length; the interorbital space is little more than a quarter of the same length, and the snout is considerably less than a third; the latter, viewed from above, is subquadrate, but with an anterior median projection and its bounding ridges emarginated; the rostro-suborbital is well defined and continues backward toward the interior limb of the preopercle, while the lower surface of the snout and below the suborbital ridge are well developed; the mouth is rather small; the opercle is also comparatively small and triangular, the posterior margin being nearly rectilinear; the dorsal spine is about as long as the head from the front of mouth to the tip of opercle, and is armed with strong spines appressed upwards; the pectorals reach backward to the vertical of the fourth or fifth anal ray, and the filamentary ventrals to about the third ray.

D. (1) II. 10, (2) 138. A. 119. P. 15. V. 7.

The scales are quite small, there being about 27 longitudinal rows in front (6 + 1 + 20), and are characteristic in their armature, there being generally 15 or 16 (13–20) rows of alternating subequal spines on the surface and no approach to union of any into keels.

The color, in alcohol, is yellowish-brown, merging into bluish on the abdomen.

N. M. Nos.	Station.	Latitude.	Longitude.	Fathoms.	Specimens.
		° ′ ″	° ′ ″		
33418	2062	42 17 00	66 32 00	150	15
33406	2064	----------	----------	----------	3

DIAGNOSES OF NEW GENERA OF NEMICHTHYOID EELS.

By THEODORE GILL and JOHN A. RYDER.

Hitherto only three species have been recognized among the Nemichthyoid eels—three species of Nemichthys (*N. scolopaceus*, *N. avocetta*, and *N. infans*) and one representing an isolated type that possibly represents another family—the genus *Cyema* of Dr. Günther. But the trawling operations of the United States Fish Commission steamer Albatross were rewarded in 1883 by the finding of not less than four species representing three hitherto unknown modifications of structure necessitating generic distinction. One of these forms was in most respects closely allied to the ordinary long known type, but the other two were very different. Diagnoses of the new types are here offered in advance of the publication of more detailed descriptions and illustrations at some other time.

SERRIVOMER.

Nemichthyids with the head behind eyes of an elongated parallelogramic form, with moderately attenuated jaws, branchiostegal membrane confluent at posterior margin, but with the branchial apertures limited by an isthmus except at the margin, and with lancet-shaped vomerine teeth in a crowded (sometimes doubled) row.

Serrivomer Beanii.

D. 157. A. 138.

The stoutest of the family and with much shorter jaws than any other, and with a very formidable vomerine armature. The total length of the single specimen obtained was .594 of a meter; its height at the vertical of the mandibular articulation is .016 m., and the greatest height of the body (just behind the branchial apertures) is .02 m.

N. M. No.	Station.	Latitude.	Longitude.	Fathoms.	Specimen.
		° ′ ″	° ′ ″		
33383	2075	41 40 30	65 28 30	855	1

SPINIVOMER.

Nemichthyids with a rectilinear occipito-rostral outline, with very attenuated jaws, high mandibular rami, the branchial apertures nearly confluent, enlarged acute conic teeth an a median row on the vomer, and with a silvery epidermis, and a filiform tail.

Spinivomer Goodei.

D. ——. A. ——.

The smallest of the family, but a beautiful silvery form. The total length of the only specimen found is .13 of a meter, and its greatest height (at the branchial region) is .0025 m.

The rays are ensheathed in a tough membrane which renders it impossible at present to enumerate them with exactitude. They are, however, it is to be noted, more distant from each other, and consequently fewer than in *Serrivomer*.

The fish has a silvery sheen by which, as well by the smaller eyes and deeper mandibles, it may be at once recognized from its relations.

N. M. No.	Station.	Latitude.	Longitude.	Fathoms.	Specimen.
		° ′ ″	° ′ ″		
33293	2039	38 19 26	68 20 20	2,361	1

LABICHTHYS.

Nemichthyids with the head behind the eyes contracted, with very attenuated jaws, the branchiostegal membrane connected to the throat and the branchial apertures limited to the sides, with small conical teeth in a band along the vomer and otherwise dentition of *Nemichthys*, a black epidermis, and the tail abruptly truncated.

Labichthys carinatus.

D. 268. A. 287. P. 13.

The ridges that bound the median rostral sulcus converge and form a carina along the median line in vertical from the anterior border of the

orbit. The greatest height of the body (at posterior third) of the type specimen (.447 m. long) is .013 m., and the height behind pectorals is .0055 m. The color is black.

N. M. No.	Station.	Latitude.	Longitude.	Fathoms.	Specimen.
		° ′ ″	° ′ ″		
33369	2076	41 13 00	65 33 30	906	1

Labichthys elongatus.

D. 346. A. 309 + *x*. (The anal is destroyed towards its end.) P. 19.

The ridges that bound the rostral groove are not confluent backwards in a cariniform extension, but end in a vertical from the orbit. The greatest height of the body (at posterior third) in the type specimen (.542 m. long) is .015 of a meter. The color is black.

N. M. No.	Station.	Latitude.	Longitude.	Fathoms.	Specimen.
		° ′ ″	° ′ ″		
33577	2100	39 22 00	68 34 30	1628	1

ON THE ANATOMY AND RELATIONS OF THE EURYPHARYNGIDÆ.

By THEODORE GILL and JOHN A. RYDER.

The remarkable fish called *Eurypharynx* was one of the fruits of the explorations of the French vessel Travailleur in 1882. A single specimen about a foot and a half long was obtained off the coast of Morocco at a depth of 2,300 meters (about 1,100 fathoms), and has been partially described by M. L. Vaillant under the name *Eurypharynx pelecanoides*.

Three specimens of the same general type of fishes were found by the United States Fish Commission steamer Albatross in August and September, 1883, and might be considered to be generically and even specifically identical with *Eurypharynx pelecanoides* were it not for several positive statements made by the describer of that species.

The problem of the relations of *Eurypharnyx* to other fishes has been discussed by M. Vaillant with what appears to us to be negative results and one set of conclusions necessarily contravenes another. But it is only just to M. Vaillant to let the opinions as to the affinity of the fish enunciated by him be presented in his own language:

"We may say that the fish presents relations with the Anacanthini, with certain Physostomi, such as the Scopelidæ and Stomiatidæ, and also with the Apodes. While it resembles these last in the want of ventral fins and the imperfection of the opercular apparatus, it differs from them too much in its well-developed and absolutely free intermaxillaries to allow it to be placed in the same group. As regards the Scopelidæ and Stomiatidæ, all the known genera in those families have a very widely open branchial orifice: in the former the intermaxillary alone forms